

Aligning and Giving Meanings On Student Learning: A UniMAP Journey Facing New Challenges

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Abstract

Significantly, the world changing of work is increasingly global and collaborative to remain sustainable and competitive. People expect to work, learn, socialize and play whenever and wherever they want to. Malaysia should grow dynamically in terms of its economically, social and educational aspects in order to stay in line with the global change. The Malaysia's New Economic Model highlights the importance to remain sustainable, where the present requirement is met without compromising our future generation. In educational aspect, educating students in this 21st century will not be as easy to just teach them in classes manually but combining the theoretical and advancement in technology. The way we utilize our expertise and resources will significantly affect our future generations. The purpose of this paper is to share some of the initiatives and visions taken by UniMAP in facing new challenges to align and give meanings on the student assessment.

Keywords: engineering education, assessment, HEI's

I. INTRODUCTION

Students in the 21st century are entering into a borderless world marked by rapid and global challenges, advancement in information technologies, dealing with complex problems and sustainability issues. The internet is becoming a global mobile network and be delivered over utility networks that facilitate the rapid growth of online videos and rich media. Higher institutions today are facing new challenges they had never faced before; that to produce graduates who are relevant in the 21st century. Educating this 21st century's will undertake the need to discover new fundamental knowledge and technology through research and making new discoveries and innovation continuously. To stay competitive and address the global challenges, we must bring new products and services to market faster and better than anyone else. Always remember to deliver the best among the best to serve the world markets.

II. THE NEW CHALLENGES

Challenges occur as a guide path of assessment to ensure every initiatives taken was in line with the national mission and vision. Malaysia's New Economic Model was developed strategically to ensure that our community have a quality of

life based on three general factor of high quality ; High income, Sustainability and Inclusiveness. Malaysian community should achieve the target of USD 15,000 GNI per capita by 2020 to recognize them as a well-developed country with stabilize economic status. Sustainability refers to the ways we meet our needs nowadays must not affecting our future generation at all. For inclusiveness, community are enable to get benefits from country wealth. The New Economic model had been the challenges for higher institution so that they focused on student assessment in order to achieve that high quality of life.

Global challenges often being the challenges that need bigger adjustment as it included the globalization of real world, in competing to be the best. Nambisan S. et al. (2014) stated that changing of global environment open innovation chances despite positively expand the networking relationship among various players in technology areas. Besides that, global environment enhances World-Best products that have high potential to appeal in the global market. The acceleration convergence and integration of industries and technology areas from global change will promote the development of IT industry transformation into a knowledge-based economy. Here we have seen that significantly, the global change have high connectivity with our institution's economy. Society nowadays should have high sense of consumer-oriented, that the products and services they bring will met the growing need to enhance creativity among the global player. The emergence importance of the emotions and design is a sign of the growing importance of human touch in our industries.

Besides, to elaborate that sustainability issues stated in the Malaysian's New Economic Model, strategy leadership & resourcing, campus operations and buildings, research and education must plays vital role in engaging that criteria so that we have the greatest impact of sustainability. This criteria was included in Sustainability Framework where first, the higher education system must design their core activities that are up-to-date and reliable to attract our 21st generation. Institution plays its importance as a support system and equipped students with infrastructure that enhance the quality and

standards of higher education. Delivery process and function are as important as infrastructure, where here institution provide its best way of service in delivering subject matter. Delivery process often takes place at classroom, where we need beyond that (Forum, Laboratory, Discussion, Symposium, etc) to enhance our standard of delivering system. By combining these three great catalyst, will result in the greatest impact as we underpinning governance, strategy, quality management and resourcing system.

Malaysia Education Blueprint 2013–2025 has been a platform of benchmarking for UniMAP in order to address the global challenges to stay competitive in this higher educational society. Eleven important shifts are stated in this blueprint to transform Malaysian educational system into the 21st century. Five of the shifts, has been used by UniMAP as a baseline and reference in transforming the system. First was the efforts in developing Value-Driven Malaysians. Institution should develop students holistically by reinforcing requirement to participate in Sports Club, Academic Club and also Uniformed Body. This participation somehow enhance their critical skill, as what criteria the employers seeks for. Next, there also a shift on leveraging ICT to scale up quality learning across Malaysia. This shift means to transform general ICT function by various schools and institutions from basic ICT skills (Microsoft Word, etc.) into wider access content by Malaysian students. Internet access will be provided with the support of virtual learning environment, where augment online content is provided to share best practices of the best teachers delivering lessons in critical subjects. Regardless of location or student skills level, maximizing the use of ICT for distance and self – paced learning is important in expanding learning access. As the international research proves that studies do not only takes place on schools or institution but mostly at their house and neighborhood, partnership activities with parents, community and private sector must be held at scale. Parents will be equip to support their child's learning through parents engagement toolkit to their child's in – learning progress.

Through this paper, UniMAP enlighten its challenges and experience on educating the engineers of the 21st century. Parallel with the UniMAP mission in producing holistic human capitals that contribute to the nation's development and industrial competitiveness agenda, the graduates of this era must have enough sense of critical and job skills. UniMAP need to embark in line with international developments in building Education for Sustainable Development, in particular focusing a holistic or trans-disciplinary approach to the area in both teaching and research by using our campuses as a living laboratory for researching and learning about social, cultural, economic and environmental sustainability along with innovations through leadership of change, curriculum reform, assessment and research in our niche and with our expertise. This transformation of knowledge development of knowledge starts with a real world problem with many dimensions and inquires into and learns about it from the perspectives of many

different perspectives. Thus, seeks to create a new understanding by integrating, connecting and changing the knowledge that feed into it. These skills are embedded in disciplinary standards (Geoff Scott, 2014).

III. FRAMEWORK

This framework will suggest the way in overcoming the challenges address in educating our 21st century graduates with multipurpose work and critical skills. All Institution mainly have their biggest responsibilities in transforming the knowledge delivery system into something innovative.

Highlighting the nation's PSPTN thrust, widening access and equity defines that shared knowledge and increased expertise on its governance, enculturation of life-long learning improving nation's teaching and learning, enhancing research and innovation, intensifying internalization and reinforcing the delivery systems. In improving teaching and learning activities, the indicator was developed with certain objectives in reviewing curricular that are relevant for the 21st century generation.

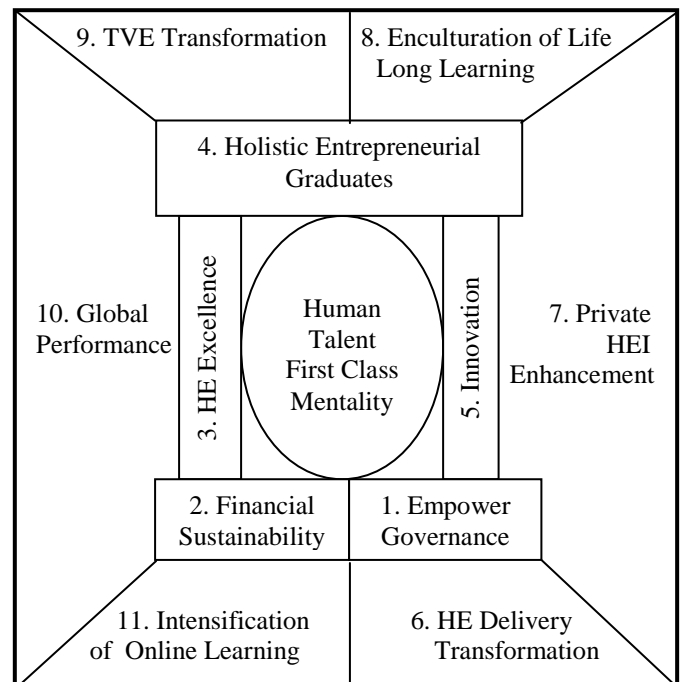


Fig. 1. Higher Education Strategic Framework.

Higher Education Strategic Framework highlights institution focus to transform educational system reacting the global challenges. As stated, 21st century graduates must develop holistically with multipurpose skills and knowledge.

Next, the accreditation framework criteria; accreditation criteria were subjected to address the change in curriculum based on the challenges in having the best of 21st century graduates.

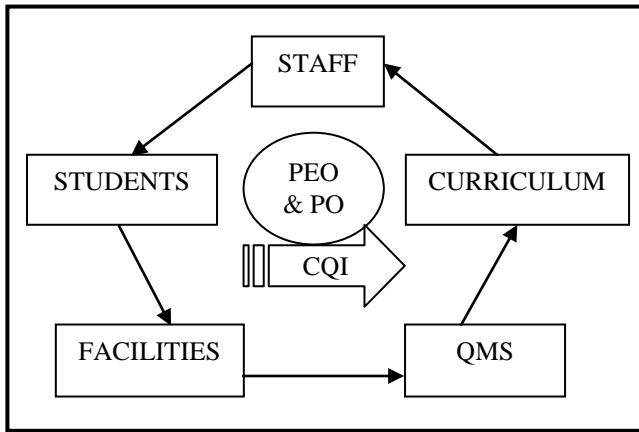


Fig. 2. Accreditation Framework Criteria

By this Figure, Staff, Students, Facilities, QMS and Curriculum related to one another in achieving accreditation criteria in the future. Higher institution plays role to ensure that every components works well with one another in achieving the CQI (Continuous Quality Improvement) that later will support our PEO (Program Educational Objectives) and PO (Program Outcomes). In the historical perspective of engineering accreditation in Malaysia, BEM (Board of Engineers Malaysia) was established on 1967 to register Professional Engineers where the BEM joined the accreditation with IEM and this establishment gives Malaysia opportunities in having the world class engineers in a society that recognize engineering education in Malaysia.

In aligning student ways of learning, curriculum design is the most important part besides the facilities, support system, and the students itself. Curriculum is adjusted to emphasize on global change, which later will answer the question of what is worth learning.

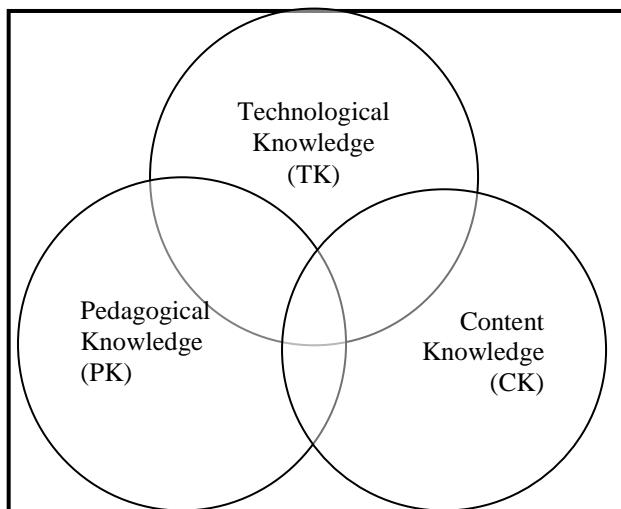


Fig. 3. Technological Pedagogical Content (TPACK) Framework

TPACK Framework described the combination of Technological Knowledge (ICT), Pedagogical Knowledge and Content Knowledge in achieving holistic student development in learning and teaching. We have that great practitioners, intelligent facilities, and surely with excellent curriculum content. The way we teach, the content we deliver and the student reaction will improve assessment with correct alignment of curriculum content. Higher institution are responsible in developing students aspect of Deep and Broad, where we educating students to have competencies, communicate with one another well, have high teamwork spirit with understanding the subject matter. This various competencies is usable in addressing problem arise throughout their career life.

Apart from that, when accreditation criteria and curriculum design does their part, teaching and learning processes enhance our efforts in overcoming the global challenges. Planning stages of teaching and learning are as important where we have our learning order per calendar year, instruction in achieving our learning order and later the assessment process takes part. Learning order must consist of three important domains (Knowledge, Psychomotor and Attitude) where this combination will support the assessment stage and evidences that assessment as well means as learning which students are involved in the learning process, developing themselves from various aspect. The concept of transdisciplinary represent the real – life context with a connecting inquiry issues that are important, relevant and meaningful when students are asking questions when the learning process takes place.

Delivery and Pedagogy explain the initiatives to have ‘computerized – students’. This explain the situation where students only have their tangible knowledge in classrooms and exam, and they forget the whole learning components after graduating. 21st century graduates tends to have high risk in this ‘computerized’ situation if institution didn’t take seriously their delivery and pedagogical processes. Change in delivering subject need to work out so that we can make sure the key lessons on how we engage students in productive learning where students will be the graduates that able to contribute towards Malaysia research and development, professional society and graduates who engage in life – long learning or continuous education opportunities.

As being discussed before, educating the engineering nowadays need us to discover newer ways to deliver our knowledge and experience effectively. Through our initiatives, future engineering education brings forward a faculty centred to learner centered. Learner centered mode require the students to learn not only by the initiatives give by lecturers (Class, Assignments, Notes, Exam and etc.) but also to discover the subject matter themselves. These Learner Centered study define the Outcome-Based Learning (OBE) where the students monitor their own progress, ask questions and practicing what have been taught in the lectures. By this

way, overcoming issues on 'student lack of critical skills' will be easier. Besides that, Discovery-based learning also have been a struggle for UniMAP and engineering schools today in enhance and support our students to deliver innovation in order doing their discovery. Students need to have high spirit in discovering new innovation through learning process and institution such as UniMAP plays vital role in enhancing that spirit in preparing those engineers to enter the global economy competitive world. Learn how to learn rather than having a content orientation pictures the real world facing by these future engineers. Inquiry-Based scientific method can replace the long hours of lecture in improving our student's assessment (examination and quiz) outcome by having great impact and quality in it. The most important aspect in educating these future engineers is to produce that ideal and creative human resource in creating new technology and knowledge to nation's competitiveness.

IV. THE INITIATIVES

Suggested framework in producing graduates of the 21st century highlights the role of PSPTN major thrust. This major thrust underlines our higher educational system. 23 critical agenda projects (CAP) have been developed to meet that strategic thrust in order to achieve Malaysia Vision 2020, that our country must increase the capacity and knowledge and innovation in nurturing the first class mentality. By this agenda, it gives us the result of generic-student attribute with activities held in improving learning processes either through industrial training, writing final year or capstone project. In PSPTN, five pillars have been identified to support the other 23 CAP which one of it was the New Academia. Shahrin (2014) stated that it is a concept based on innovative, entrepreneurial and global initiatives through knowledge culture that generates high impact contributions and wealth creation. New academia is a framework towards enhancing and achieving entrepreneurial academia. This achievement requires innovation in learning to produce individuals with entrepreneurial mind-set that is able to turn problems into opportunities and solved ill-defined non-structured complex problems in chaotic and non-chaotic situations by thinking out of the box. These skills were a compulsory state having by our future graduates to make sure they are being dynamic in every situation given later by the employer.

In offering the best programs will best criteria discussed before, institution must review their curriculum that it should undertake and fulfill the accreditation criteria set by EAC. Those criteria specifically refers the paradigm shift (Outcome-Based Education) to offer the students to be actively involved in learning rather than the previous system that takes student passively while learning process occurs. By taking these initiatives, possibly we have high potential to produce graduates who are leaders in the field or chosen field as demonstrated via career advancement, who are members and contribute to professional society, graduates who engage in

life-long learning or continuous education opportunities and those graduates who are an entrepreneurial engineers.

The Pedagogy is another initiative should be taken by institution. Pedagogy learning activities undertake the combination of lecture activities, informal group activities, structured team activities, problem-drive course, student centered learning, cooperative learning and active learning. This combination of activities is an insight and adaption on practical and inspirational pedagogic models. UniMAP has its own experience in this pedagogical learning; Blended Learning. Blended Learning is a learning activities offers that undertake the students to have online activities with respective hours of curriculum. 30% to 80% of learning content operated on a portal web either those percent is to support or relieving the face-to-face learning agendas. To date, UniMAP has blended its 22 course from 14 schools, which the lecturers will give the course content online, having online forum, group discussion and assignment. This blended learning also undertake the assessment for students to be conducted online, as quiz and midterm exam will takes place twice per programs and suitable to be conducted as it support the online system learning as an initiative to fulfill the CAP agenda in enhancing learning and teaching. UniMAP also initiate international collaborating program in Asean University President Forum (AUPF) and IOU (Islamic Open University) in designing interactive and exciting activities in order to empower the students.

V. CONCLUSION

In facing this competitive world, institution plays the vital role to make sure education we offers to our future generation are exciting, innovative, have high spirit of entrepreneurial character, creative in designing the curriculum content, adventurous, demanding by the industry and empowering environment is more important than specifying curricular details. By empowering environment, future graduates will adapt faster to an open innovation, interact with various players in global environment and they can proactively respond to the changing environment they will faced later. Aligning and giving meaning on students assessment gives opportunities and challenges in meeting the requirement of 21st century graduates quality and standards. We address global challenges in educating Malaysian to be the world – class nations with innovation in learning processes, where this global initiative will generates high impact contributions and wealth creations.

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